

UNIVERSITY OF KENTUCKY

COLLEGE OF AGRICULTURE

Extension Division

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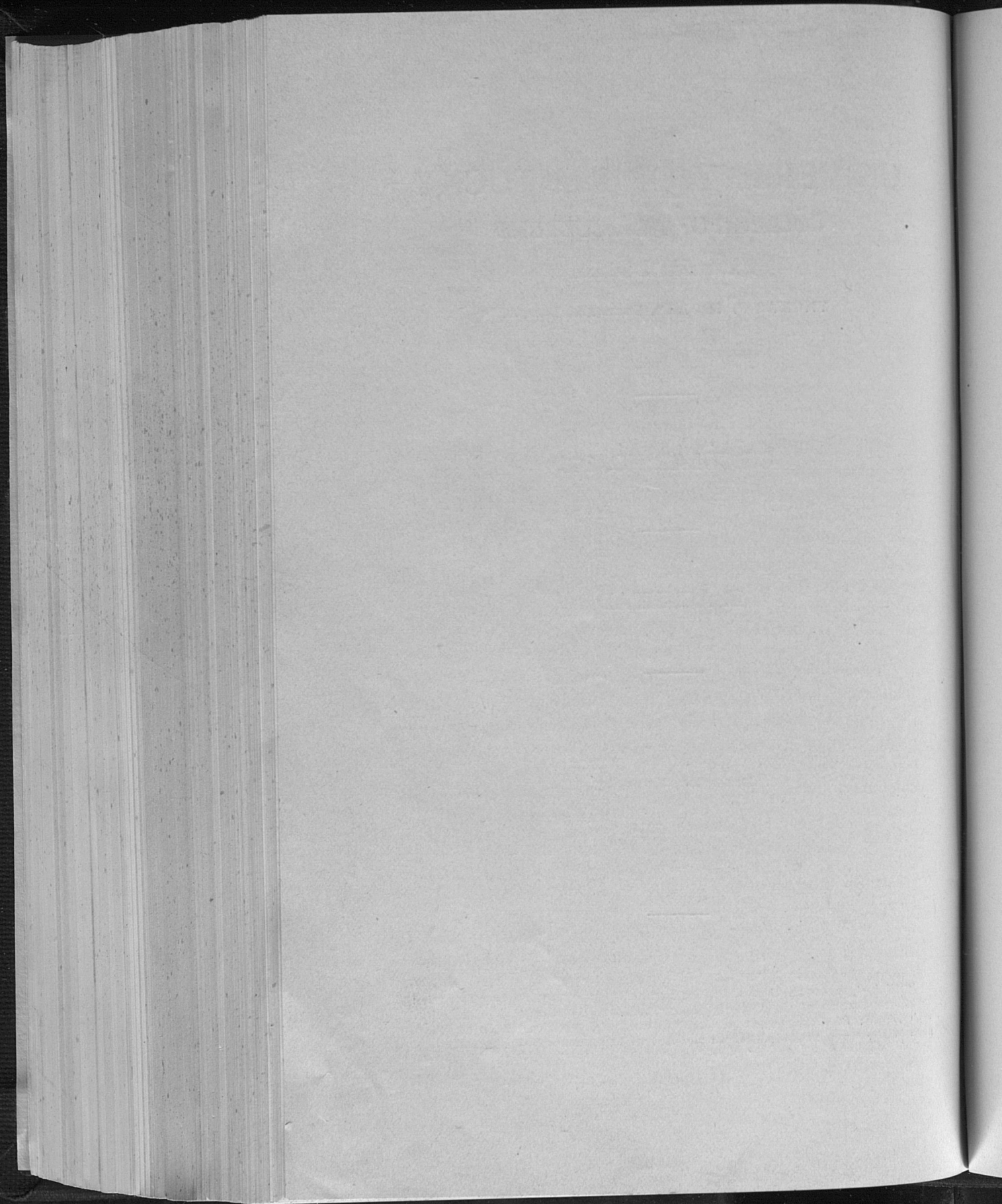
CIRCULAR NO. 165

BLACKHEAD

Lexington, Kentucky

March, 1924

Published in connection with the agricultural extension work carried on by cooperation of the College of Agriculture, University of Kentucky, with the U. S. Department of Agriculture, and distributed in furtherance of the work provided for in the Act of Congress of May 8, 1914.



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BLACKHEAD

(Enterohepatitis)

By A. J. STEINER

Blackhead is a disease that primarily affects turkeys, but in rare instances has been observed in other fowls, especially chickens, in which it closely resembles the disease, Coccidiosis. It is the most common and fatal disease of turkeys, afflicting them at any age, but particularly at feathering time. In many sections of the country the disease is so prevalent and has caused such severe losses, that many turkey breeders have had to dispose of their flocks.

CAUSE

The disease is caused by a specific protozoan microorganism, *Histomonas meleagridis*, which is a single cell form of animal life. The organism enters the body of the fowl by the digestive tract, in which it passes thru a number of reproductive stages, and is eliminated with the droppings in a cystic stage. In the latter form the organism is very resistant to atmospheric conditions and is capable of maintaining life for months in damp or wet places.

SOURCE OF INFECTION

Infected water and soil are the principal means of transmitting the disease. They may be infected by drainage, by diseased wild fowls, or by the addition of diseased fowls to the farm flocks. After the infection is once present it is impossible to estimate how long it remains. Some breeders of turkeys, who discontinued their flocks for one or two years, have failed in subsequent attempts to raise them as before, with free range. The infection, while it may have survived in the soil and water, was possibly assisted in remaining by its passage thru other

fowls. Chickens and ducks, while not very susceptible to the disease, are favorable hosts for its prolongation. When buying fowls of any species care should be taken to determine that they are not from blackhead infected premises.

SYMPTOMS

The early symptoms of blackhead are those of general depression; the affected birds appear unthrifty, feathers are ruffled and wings droop. Weakness, noticeable in the legs, causes the diseased fowl to lag behind the rest of the flock and finally becomes so marked that the turkey is unable to stand. A soft,



Fig. 1. A typical blackhead liver showing large necrotic areas on surface.

greenish yellow diarrhea may develop with the early symptoms or may not appear until shortly before death. The appetite is at first only impaired, but eventually the bird stops eating and rapidly loses flesh. The dark bluish discoloration of the head, from which the disease derives its name, is not always present. The symptoms vary with the duration of the disease. Mature fowls, while they occasionally have an acute type of the disease and die suddenly, are usually sick a week or two, during which time they manifest the characteristic symptoms. Poults, 1 to 3 months of age, on the contrary, nearly always die within 3 to 4 days following the first symptoms, which are similar to those in the mature fowls, but less pronounced.

LESIONS

The liver and the ceca, or blind pouches, are the principal organs which show pathological changes in blackhead. The liver is consistently enlarged and has on its surface *necrotic areas* which vary in size from a pea to a half dollar. (Fig. 1.) These areas are firmer than the normal liver tissue and appear slightly sunken on the surface. They are almost perfectly round, unless two or more have coalesced; and are a gray or yellowish-brown in color, with the center of the area the darkest. If the liver is cut it will be observed that the areas extend deeply into the structure of the organ. The lesions in the ceca, altho always present, may not be so obvious as those in the liver. They vary from a slight inflammation of the mucosa, or internal lining, to a severe ulceration or thickening of one or both ceca. (Fig. 2.) In the more conspicuous cases the pouches are greatly enlarged and inflamed, and contain a firm, bloody yellow, necrotic exudate, which may completely fill the cavity. The ulceration of this organ may extend thru the wall and involve adjoining organs.

The presence of the lesions in either the liver or ceca is sufficient evidence on which to base a diagnosis.

PREVENTION AND TREATMENT

The only means of preventing the disease is by eliminating the possible sources of infection, which is practically impossible

with the general methods used in raising turkeys. The disease, however, has been prevented, or at least controlled, on infected premises, by sanitation and hygiene; but to adapt such measures to turkeys necessitates at least partial or strict confinement. Contrary to general belief turkeys can be raised successfully without free range, as many of the largest breeders are now raising them in comparatively small pens or runs. They should be on high, well-drained land, that can be cleaned and occasionally plowed and replanted.

The drinking vessels should be protected against contamination from the feet or droppings of the turkeys, and only clean water, preferably from a well or cistern, should be sup-

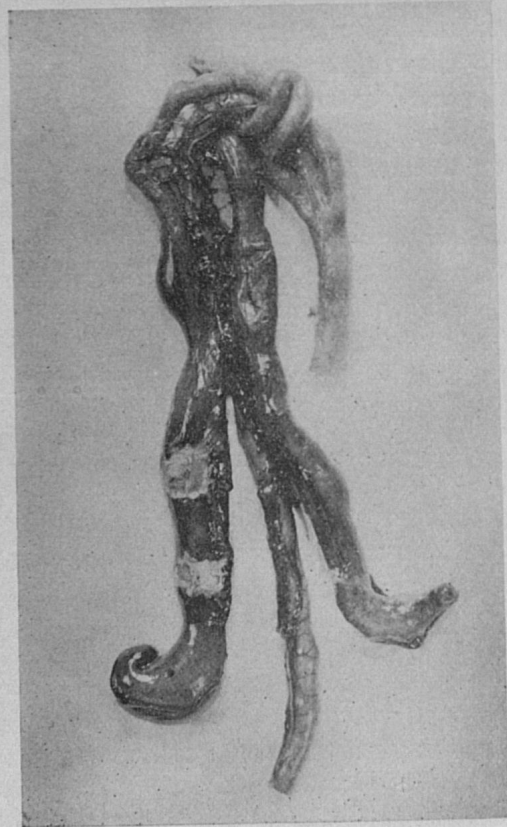


Fig. 2. Ceca showing ulcers which have festered thru the wall.

plied. Water holes should not be allowed to form. Feed should be given in protected troughs, in which the turkeys cannot stand, or on a floor, which can readily be cleaned; but never on the ground. Houses, together with feeding and watering utensils, should be disinfected frequently with a 5 per cent solution of creosote or any other strong disinfectant.

When a flock is infected, medicinal agents that have an antiseptic action are best given in the drinking water, not only to prevent the transmission of the disease, but also for their curative properties. As most of these drugs corrode metal, the utensils should be of glass or crockery.

The following combinations, which have given the best results, are dosed for diseased flocks and should be given continually for two weeks, following which, the dose is reduced one-half by doubling the amount of water. The latter dilution may also be used for prevention, and should be given for two days at a time at least twice a month.

Bichloride of mercury	15 grains
Copper sulfate	10 grains
Magnesium sulfate	20 grains
Water	1 gallon

Potassium permanganate	7 grains
Copper sulfate	10 grains
Ferrous sulfate	15 grains
Magnesium sulfate	20 grains
Water	1 gallon

Bichloride of mercury	15 grains
Sodium sulpho-carbonate	15 grains
Calcium sulpho-carbonate	15 grains
Zinc sulpho-carbonate	15 grains
Water	1 gallon

Sodium sulpho-carbonate	15 grains
Calcium sulpho-carbonate	15 grains
Zinc sulpho-carbonate	30 grains
Water	1 gallon

When the turkey refuses to drink, dissolve any of the above remedies in a pint instead of a gallon of water and give daily two tablespoonfuls to a mature bird and one to a poult.

Numerous other drugs are often highly recommended by turkey raisers for the control of blackhead. The most common of these ipecac, which is generally given in the powdered form as follows: Two teaspoonsful are added to sufficient mash for 20 poults and administered twice a week until they are three months of age, after which the dose is cut in half and given once a week. One tablespoonful for 20 birds is recommended twice a week for sick mature turkeys. Experimentally, however, this and other drugs that have attracted favor, have not proved to be so efficacious.